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## THE GENUS XIPHANDRIUM LOEW IN NORTH AMERICA

(DIPTERA; DOLICHOPODIDAE)

BY M. C. VAN DUZEE

*Buffalo, New York*

In 1899, Dr. Wheeler described as *Porphyrops xiphères*, a typical species of the genus *Xiphandrium*, although hitherto it has never been placed therein. This is the only described species of the genus from North America. Having five new species and a variety in my collection, I am describing these; no doubt others have unrecognized material in this interesting little genus.

I have taken them only by sweeping in rather swampy, sunny places where there was short grass.

They resemble small *Porphyrops*, being from 2.5 to 3.5 mm. in length, with long strap-like third antennal joints, usually from six to ten times as long as wide; the arista is terminal, rather thick and short, usually about as long as the width of the front; the middle coxae usually have a spine or thorn at tip as in many of the *Porphyrops*, these spines are often pale in color. The wings are much like those of *Porphyrops*, except that they are narrower, especially at base. When once recognized the genus is easily distinguished from the related genera.

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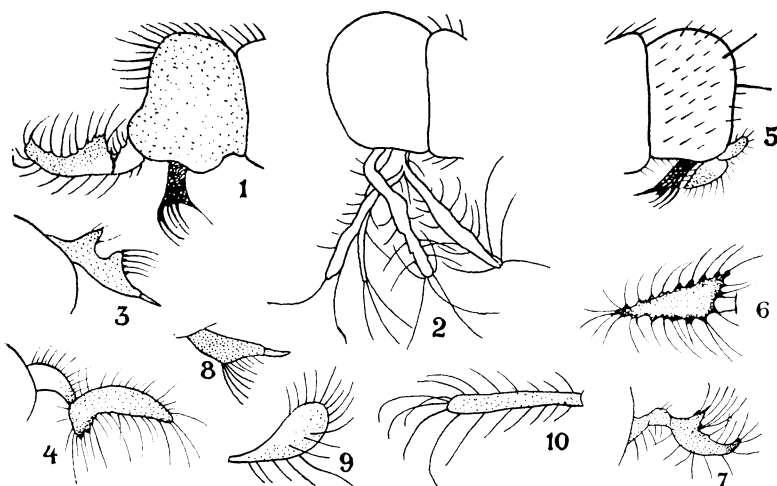
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**femoratum** var. **pollex** new variety

Inner appendages without such a protuberance; hypopygium as in figure 1, (Nevada, Alaska.).....**femoratum** new species



#### Explanation of figures of *Xiphandrium*

Fig. 1, *femoratum* new species, hypopygium of male. Fig. 2, *longicorne* new species, hypopygium of male. Fig. 3, *femoratum* variety *pollex* new variety, inner appendages of the hypopygium of male. Fig. 4, *femoratum* new species, outer lamella of the hypopygium of male. Fig. 5, *femineum* new species, hypopygium of male. Fig. 6, *triangulatum* new species, outer hypopygial lamella of male. Fig. 7, *femineum* variety *dubium* new variety, outer hypopygial lamella of male. Fig. 8, *femineum* variety *dubium* new variety, inner appendages of the hypopygium of male. Figs. 9 and 10, *aldrichi* new species, appendage of the male hypopygium.

**Xiphandrium xiphères** Wheeler

*Porphyrops xiphères* Wheeler, Proc. Cal. Acad. Sci., II, p. 34, pl. II, fig. 53.

The following is a copy of Prof. Wheeler's description; I have not seen any specimen of this form.

♂: Length, 3.5 mm.; of wing, 3 mm. Palpi small, dusted with white.

Face broad for a male, covered with silvery white dust. Antennae black; first and second joints short, third joint flattened, as long as the thorax, slowly tapering to the tip and covered with short and almost imperceptible pile; arista terminal, very short pubescent, its basal segment somewhat thickened. Front black, rather opaque. Postocular cilia abundant, snow white. Thorax and scutellum blackish metallic green, the latter with bluish reflections. Abdomen dark metallic cupreous green; edges of the segments black; basal segments bearing long pale hairs on their sides. Hypopygium shining black, with the protruding appendages; lamellae triangular, tapering, covered with erect hairs, black, each with a small white spot at its base; internal appendages club-shaped. Pleura thickly covered with gray dust, except above the base of the middle coxae where the metallic green ground-color is exposed. Coxae concolorous with the pleura, only their extreme tips yellow; anterior surfaces of fore coxae clothed with conspicuous silvery white hairs. Middle coxae each with a tuft of similar hairs and a couple of stout curved, black bristles. Legs plain, yellow, anterior tarsi from the tip of the first joint, the hind tibiae, which are somewhat incrassated, hind tarsi and the hind femora on their upper surfaces near the tip, black. Wings grayish hyaline, not narrowed towards their base; veins brown; third and fourth veins nearly parallel. Halteres and tegulae yellow, the latter with long white cilia.

Delaware County, Pennsylvania.

**Xiphandrium femoratum** new species (Text-figs. 1 and 4.)

♂: Length, 2.8 to 3 mm. Face narrow, of nearly parallel width, silvery white. Palpi black, their tips with white pollen like the face. Front violet. Antennae black; third joint fully as long as the height of the head, rather broad at base, gradually tapering; arista as long as the width of the front at vertex. Upper orbital cilia black, the white beard long and abundant.

Thorax and scutellum dark shining green with just the suggestion of a broad median vitta of blackish or violet; pleura with thin grayish white pollen.

Abdomen metallic green, more blue on the sides, sometimes almost wholly coppery, with conspicuous white hairs on the sides and venter. Hypopygium (fig. 1) black with stiff black hairs; the outer lamellae (fig. 4) lanceolate, black, more or less yellow at base, fringed with rather long pale hairs, some of which appear nearly black; inner appendages small, black, somewhat shovel-shaped, rather obliquely truncate at tip, with a pale stout bristle at the acute apical corner and a few stiff hairs back of this spine.

Fore coxae black with about apical half yellow, their anterior surface covered with long white hairs; middle and hind coxae black with narrow yellow tips, the former with two long black bristles on outer surface and with a few

long yellowish bristles at tip, which do not seem to form a spine as they usually do in this genus; hind coxae with one large black bristle and a few minute white hairs on outer surface. Fore femora black with extreme base and tip yellow; middle femora wholly yellow, with three preapical bristles, one in front and two on posterior side; hind femora yellow with apical half or two-fifths black, this black extends nearly to basal third on upper edge; they have one preapical bristle; all femora with short black hairs, no longer ones below. Fore and middle tibiae wholly yellow, each with several bristles above; hind tibiae wholly black. Fore and middle tarsi about as long as their tibiae, infuscated from the tip of the first joint, which is nearly as long as the remaining four taken together; hind tarsi scarcely as long as their tibiae, wholly black, slightly compressed, with the first and second joints of nearly equal length. Calypters and halteres pale yellow, the former with whitish cilia.

Wings grayish; third and fourth veins approaching each other a little and then parallel for a short distance at tip, the fourth ending in the apex of the wing; last section of fifth vein three times as long as the cross-vein and reaching the wing margin; sixth vein very close to the wing margin and nearly parallel with it, the wing being much narrowed at base.

♀: Face wide, green, thickly covered with gray pollen, divided near its middle by a suture, below which the ground color shows through a little; palpi large, black with gray pollen and black hairs; proboscis black; front violet edged with blue; antennae black, third joint elongate triangular, nearly twice as long as wide, arista thick, apical; a little longer than the antennae, its first joint short; the white beard very thin. Body color about as in the male; coxae, fore and middle femora, their tibiae and tarsi about as in the male, except that the fore coxae are mostly blackish and all coxae have shorter white hair. Hind femora yellow with apical fifth black; hind tibiae yellow with about apical third black; otherwise about as in the male.

Described from nine males and six females which I took at Wells, Nevada, June 6, 1915; several males and females taken by J. S. Hine, at Kodiak, Alaska, in June, 1917, and fifteen males and seven females taken by J. M. Aldrich, in Alaska in 1921; eight taken at Skagway, June 4; ten at Anchorage, June 10 to 13; three at Fairbanks, July 1, and one at Healy, June 21.

The *holotype* and *allotype* were taken at Wells, Nevada, and are in the author's collection.

**Xiphandrium femoratum** variety **pollex** new variety (Text-fig. 3.)

This form differs from the above described male in the inner appendages of the hypopygium having a thumb-like projection on their lower edge near the middle (figure 3); the fore coxae also seem to be less yellow at tip. The third antennal joint of what seems to be the female is slightly shorter than that of the females described above.

Described from two males and five females which I took at Wells, Nevada, June 6, 1915; one male taken by Mr. Cole at

Hood River, Oregon, June 21, 1917; several specimens taken by Prof. James S. Hine, at Kodiak, Alaska, in June, 1917, and one male taken by J. M. Aldrich, at Skagway, Alaska, June 4, 1921.

*Holotype* and *allotype* in the author's collection and taken at Wells, Nevada.

The male of *femoratum* differs that of *xipheres* Wheeler in having the inner appendages of the hypopygium more shovel-shaped, not at all club-shaped, and in having the hind femora much more blackened at tip. Wheeler's species is from the East, these forms from the West.

**Xiphandrium triangulatum** new species (Text-fig. 6.)

♂: Length, 2 mm. Face very narrow, in the type the eyes seem to touch in the middle of the face; below, it has silvery white pollen. Front blackish. Antennae black; third joint as long as the head-height, about as wide at base as the width of the front and tapering a little towards the top; arista thick, not much longer than the width of the third joint at base. Lateral and inferior orbital cilia white.

Thorax shining green; pleura dulled with white pollen.

Abdomen green with bronze reflections. Hypopygium black with rather long black hair; the outer lamellae (fig. 6) yellowish, with upper edge black and fringed with pale hairs; they are triangular with a stem at base; inner appendages very small.

Fore coxae pale yellow, a little blackened at base, their anterior surface covered with long white hair; I cannot see any black bristles or hairs at tip. Middle and hind coxae black, narrowly yellow at tip, the former with three black bristles near the tip on outer surface, the latter with one black bristle, middle pair with minute yellow hairs on the front surface and a yellow spine at tip. Femora yellow, the hind ones a very little blackened above at tip and with one preapical bristle. Middle femora with two preapical bristles, one on each side, and ciliate below with long yellow hairs on lower posterior edge, which are longer than femoral width. Fore and middle tibiae yellow, each with several bristles on upper surface; hind tibiae brownish yellow. Fore tarsi about as long as their tibiae, black from the tip of the first joint, which is not quite as long as the remaining four joints taken together. Middle tarsi a little longer than their tibiae, infuscated from the tip of the first joint, the base of the joints still paler, their tips blackish. Hind tarsi brown, their first joint a little shorter than the second. Calypters, their cilia and the halteres, yellow.

Wings grayish; beyond the cross-vein the third and fourth veins are a little arched so as to separate and then approach each other, still they are nearly parallel towards the tips, the fourth ending in the apex of the wing; last section of the fifth vein more than four times as long as the cross-vein; sixth vein nearly parallel with the margin of the wing, the wing being narrowed at base.

Described from one male taken at Oak Creek Canyon, Arizona, in August, at 6,000 ft. elevation, by F. H. Snow. *Type* in the author's collection.

**Xiphandrium flavicoxa** new species

♂: Length, 2 mm. Face very narrow below, wider above, silvery white. Front shining violet. Antennae black; third joint scarcely as long as the height of the head and not much wider at base than the width of the front; arista about as long as the width of the front. The orbital cilia seem to be wholly black (I can only see two or three of the lower ones).

Thorax greenish. Abdomen green with bronze reflections. Hypopygium black with four black hairs above, its lamellae small, triangular with a stem, yellowish at base, apical half black, fringed with minute pale hairs; I cannot see any inner appendages.

Coxae yellow; anterior and middle ones with yellow hairs on the front surface, the latter with a short yellow spine at tip and two or three black bristles on outer surface near the tip; hind coxae with one black bristle. Femora yellow, nearly bare below; middle ones with one small black bristle on each side near tip; hind pair with one preapical bristle; fore and middle tibiae yellow, the former with minute bristles and the latter with large ones. Hind tibiae brownish. Fore and middle tarsi a little longer than their tibiae, first joint as long as the following three joints taken together, yellow, becoming darker from the tip of the first joint. Hind tarsi black, with the second joint a little longer than the first. Calypters, their cilia and the halteres, yellow.

Wings tinged with yellowish brown; fourth vein nearly parallel with third from near the cross-vein, ending in the apex of the wing; last section of fifth vein about three times as long as the cross-vein; sixth vein short, parallel with the margin of the wing.

Described from one male taken at Lavender, Floyd County, Georgia, August, 1910, by J. C. Bradley. *Type* in the author's collection.

**Xiphandrium femineum** new species (Text-fig. 5.)

♂: Length, 2.5 mm. face wide, nearly as wide as usual in the female sex, a little narrowed below, silvery white. Palpi largely yellow. Front bright blue-green. Antennae black; third joint about as long as the height of the head, rather narrow and of about equal width to near its tip; arista about as long as the width of the face. Lateral and inferior orbital cilia and beard white.

Thorax greenish, dorsum dulled with brownish pollen; scutellum blue-green; posterior edge of the pleura yellow. Abdomen bronze green. Hypopygium (figure 5) black, with short black hairs and two spines at tip; outer lamellae somewhat triangular, small, apical half black, basal half yellowish; inner appendages rather large, black, pointed at tip with three stout yellow hairs.

Coxae wholly yellow; fore coxae with long white hairs; middle ones with a short yellow spine at tip and two small bristles on outer surface; posterior pair with one black bristle. Femora yellow, nearly bare below; posterior pair

considerably infuscated above at tip. Fore and middle tibiae yellow; hind tibiae wholly black, with three bristles above. Fore tarsi as long as their tibiae, black from the tip of the first joint, which is slightly widened at tip and as long as the remaining four joints taken together; middle tarsi as long as their tibiae, yellow, darker at tip; hind tarsi wholly black, with the first joint a little shorter and thicker than the second. Calypters, their cilia and the halteres, yellow.

Wings dark grayish; third and fourth nearly parallel beyond the cross-vein, then slightly convergent and again nearly parallel at their tip, last section of fifth vein about two and one-half times as long as the cross-vein; wing narrowed at its base.

Described from one male, which I took at Rochester, New York, May 29, 1916. Type in the author's collection.

**Xiphandrium femineum** variety **dubium** new variety (Text-figs. 7 and 8.)

This form is like *femineum*, except that the outer lamellae are longer (figure 7) and apparently with longer stem; it is possible, but not probable, that they appear so on account of being more extended; the inner appendages (figure 8) are about the same in both forms. The first joint of the fore tarsus is a little shorter, being as long as the two following joints taken together, not as long as the following three joints, as is the case in *femineum*. The last section of fourth vein is very nearly straight in this form, being only slightly bent near its middle, while in *femineum* its bend is very distinct, although not great.

These are all structural characters and, although slight, would if constant give specific rank to this form, but until more material is secured I think it better to place it as a variety of *femineum*.

Described from one male, which I took at Gasport, New York, August 28, 1921. Type in the author's collection.

**Xiphandrium longicorne** new species (Text-fig. 2.)

♂ : Length, 3 mm. Head rather small. Face very narrow, silvery white, in the type the eyes touch in the middle of the face, probably because the head is shrunken. Palpi and proboscis black. Antennae black, its white pubescence conspicuous; third joint very long, nearly as long as the abdomen; in the type it is wavy, like a ribbon, of nearly equal width for nearly its entire length; arista short and thick, but as long as the width of the front. Front greenish, very short, not much more than a line and without bristles. Orbital cilia and beardwhite; I cannot see any black cilia above.

Dorsum of thorax and the scutellum shining green; pleura slightly dulled with whitish pollen. Abdomen green with coppery reflections, the lower portion of its sides with pale hairs. Hypopygium (fig. 2) black, without hair, but with scales of pollen; its lamellae developed into long ribbon-like black filaments, which are fringed with long bristly hairs; the inner appendages are also long filaments with long bristles at tip, enlarged a little at base.



Fore coxae wholly yellow; middle and hind ones black with yellow tips; fore and middle pairs with yellow hairs on their anterior surface, hind pair with yellow bristle on the outside; middle ones with a yellow spine at tip. Femora yellow, nearly bare below; posterior pair a little infusate near the tip above. Tibiae yellow with only very small bristles; posterior tibiae slightly infuscated at tip. Fore and middle tarsi slightly longer than their tibiae, infuscated from the tip of the first joint; fore metatarsi as long as the following four joints taken together and with a row of minute bristles below. Hind tarsi scarcely as long as their tibiae, black from the tip of the first joint, which is dark yellowish and about as long as second joint. Calypters, their cilia and the halteres, yellow.

Wings grayish; last section of fourth vein bent near its middle, where it is quite widely separated from third vein, the third vein running rather close to second as far as this point, from this point the third and fourth veins approach each other a little, then run nearly parallel to their tips, the fourth ending in the apex of the wing; last section of fifth vein about two and one-half times as long as the cross-vein; sixth vein quite widely separated from the wing margin, the anal angle of the wing being somewhat prominent.

Described from one male, taken by L. O. Jackson, at Geneva Park, Grant County, Colorado, July 23, 1910, at an elevation of about 9,000 feet. *Type* in the author's collection.

Perhaps a new genus should be formed to receive this species, based on the small front and its lack of bristles, but as it is possible that the bristles may have been broken off in the single specimen we have, it seems best to wait until more material is found. Otherwise it fits well in this genus.

**Xiphandrium aldrichi** new species (Text-figs. 9 and 10.)

♂: Length, 2.75 to 3 mm. Face white, not very narrow. Front green, dull. Palpi blackish or yellowish brown, small. Antennae black, nearly twice as long as the height of the head; third joint of about equal width, ribbon-like, somewhat folded up, pubescent; arista very short, scarcely as long as the width of the third joint. Lateral and inferior orbital cilia white.

Thorax green, dulled with gray pollen. Abdomen green with black hair, those on the lower edge of the sides yellow. Hypopygium and its appendages black; there are two pair of lamellae-like appendages (figs. 10 and 9), these do not seem to be united at base, but I do not see that either can be called an outer or inner appendage as in other species; one is long and furnished with long pale hairs, the other pair have an oval tip tapering into a slender stem, these also have long pale hairs.

Fore coxae yellow, slightly darker on outer side at base; middle and hind coxae black on basal, yellow on apical half; the hairs and bristles of all coxae yellow. Femora and tibiae yellow, only the tips of posterior tibiae brown, their bristles very small. All tarsi blackened from the tip of the first joint; fore tarsi about as long as their tibiae, the first joint but little longer than the

second: middle pair one and one-fourth times as long as their tibiae, hind tarsi slightly thickened, about equal to their tibiae in length, first and second joints of about equal length. Calypters, their cilia and the halteres, yellow.

Wings gray; third and fourth veins approaching each other from about the middle of the last section of the fourth vein, but nearly parallel at tips, fourth ending in the apex of the wing; last section of fifth vein fully twice as long as the cross-vein; anal angle rounded, the wing being rather abruptly narrowed at its root.

♀: Color, venation and form of the tarsi about as in the male. Face wide, whitish; palpi black, large; antennae with the third joint somewhat triangular, but little longer than wide; arista about as long as the height of the head, slender.

Described from two males and one female, taken at Healy, Alaska, June 24, 1921, by J. M. Aldrich, for whom I am naming this interesting species. *Holotype* and *allotype* in the United States National Museum.